

What is claimed is:

1. A display device for displaying images, comprising:

an image signal source unit to provide primary image data and selected compensation data to compensate the primary image data; and

5 a display unit to display images using compensated image data obtained by compensating the primary image data with the selected compensation data,

wherein the selected compensation data is selected from a set of compensation data in response to variation of ambient temperature of the display device.

10 2. The display device of claim 1, further including a temperature sensor to detect the variation of the ambient temperature of the display device and provide temperature data corresponding to the variation of the ambient temperature.

3. The display device of claim 2, wherein the image signal source unit includes:

15 a data processing part to provide the primary image data to the display unit;

a first memory to store the set of compensation data, each compensation data being associated with corresponding one of different temperature ranges; and

a first controller to read the selected compensation data from the first memory in response to the temperature data from the temperature sensor and provide the

20 selected compensation data to the display unit.

4. The display device of claim 3, wherein the set of compensation data is a plurality of look-up tables of compensation data each of which is associated with corresponding one of the temperature ranges.

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5. The display device of claim 3, wherein the display unit includes:

a second controller to receive the primary image data from the data processing part and the selected compensation data from the first controller and generate the compensated image data;

5 a data driver to receive the compensated image data and generate compensated driving voltage signals; and

a display panel to receive the compensated driving voltage signals to display the images.

10 6. The display device of claim 5, further including a second memory to store the selected compensation data, the second controller reading the selected compensation data from the second memory to compensate the primary image data.

7. The display device of claim 6, wherein the second memory stores the selected
15 compensation data such that a plurality of look-up tables of compensation data are each stored at corresponding address in the second memory and checksum data is assigned to each of the look-up tables.

8. The display device of claim 5, wherein the second controller includes:

20 a serial-parallel converting part to convert the selected compensation data into parallel compensation data;

a third memory to store compensation data associated with characteristics of the display unit;

a first switching part to transfer one of the parallel compensation data from the serial-parallel converting part and the compensation data from the third memory in response to a first clock signal; and

a fourth memory to store output of the first switching part in response to a
5 second clock signal.

9. The display device of claim 8, wherein the first clock signal is a clock for transferring the selected compensation data from the second memory to the serial-parallel converting part.

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10. The display device of claim 9, wherein the second controller further includes;

a second switching part to transfer one a serial clock signal and a dot clock signal in response to the first clock signal; and

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a third switching part to transfer one of output of the second switching part and the dot clock signal in response to a clock signal associated with completion of transfer of the selected compensation data to the serial-parallel converting part,

wherein an output of the third switching part is provided to the fourth memory as the second clock signal.

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11. The display device of claim 5, wherein the second controller includes:

a serial-parallel converting part to convert the selected compensation data into parallel compensation data;

a buffer to store the parallel compensation data and generate the parallel

25 compensation data in response to a buffer control clock;

a third memory to store compensation data associated with characteristics of the display unit;

a first switching part to transfer one of the parallel compensation data from the buffer and the compensation data from the third memory in response to a first clock

5 signal; and

a fourth memory to store output of the first switching part in response to a dot clock signal.

12. The display device of claim 11, wherein the first clock signal is a clock for
10 transferring the selected compensation data from the second memory to the serial-parallel converting part.

13. The display device of claim 12, wherein the second controller further includes;

15 a logic gate to perform logic AND operation with respect to a vertical synchronizing signal of the display unit and a clock signal associated with completion of transfer of the selected compensation data to the serial-parallel converting part;

a second switching part to transfer one a serial clock signal and the dot clock signal in response to the first clock signal; and

20 a third switching part to transfer one of output of the second switching part and the dot clock signal in response to an output of the logic gate,

wherein an output of the third switching part is provided to the buffer as the buffer control signal.

14. A method of compensating primary image data to increase a response speed of a display system, comprising:

storing a plurality of look-up tables of compensation data in a memory, each of the look-up tables being associated with corresponding one of different temperature

5 ranges;

detecting variation of ambient temperature of the display system;

selecting a look-up table of compensation data in response to the detected variation of the ambient temperature; and

10 compensating the primary image data using the selected look-up table of compensation data.

15. The method of claim 14, further including:

storing the selected look-up table of compensation data in a buffer at a current frame; and

15 compensating the primary image data using the selected look-up table of compensation data at a next frame, the selected look-up table of compensation data being transferred from the buffer to a memory to be accessed during the compensation.

16. The method of claim 15, wherein the transfer of the selected look-up table of compensation data is performed at a blanking period between the current and next frames.

17. The method of claim 16, further including:

storing the plurality of look-up tables of compensation data in the memory, each of the look-up tables being associated with corresponding one of the different temperature ranges and corresponding one of different frequency ranges;

5 detecting frequency variation in a vertical synchronizing signal of the display system; and

selecting a look-up table of compensation data in response to the detected variation of the ambient temperature and the detected frequency variation of the vertical synchronizing signal.

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